



Dept - (PSME) Physics > Department > Program Review

Home (/tracdat/fac...

There is no audit log for this page.

Department

There is no filter for this page.

Program Review

▼ Dept - (PSME) Physics

Personnel
(/tracdat/faces/assess...

2019-20 Annual Program Review Update Submitted By: David Newton

APRU Complete for: 2019-20

Department Planning

Program Mission Statement: The mission of the physics department is to instill an understanding of the fundamental laws of nature such that also developed is a student's ability to think critically and independently from authority, especially teachers. By learning the established scientific "method" of posing hypotheses and testing them with experiments, a successful student leaves the department with the ability to logically analyze and evaluate information with confidence. This ability allows the student to gain insight and make meaningful and logical conclusions about the problems encountered throughout the course of a career in a variety of fields especially within the STEM field.

Reports

Documents



Our PLOs connect to the school's mission and core competencies by developing the intellect in encouraging thoughtful, deliberate, mindful, and patient reasoning and the methods learned empower the student as a valuable player in any problem solving environment within the community and society at large. Students hone their communication skills when participating in oral and written assignments by writing lab reports, completing lab projects and convincingly expressing their thoughts and opinions to their peers and professors. We develop the science and art of critical thinking by inculcating the use of logical reasoning in the application of the fundamental laws of nature to our world.

I.A.1 What is the Primary Focus of Your Program?: Transfer

I.A.2 Choose a Secondary Focus of Your Program?: Personal Enrichment

I.B.1 Number Certificates of Achievement Awarded:

I.B.2 Number Certif of Achievement-Advanced Awarded:

I.B.3 #ADTs (Associate Degrees for Transfer) Awarded:

I.B.4 # AA and/or AS Degrees Awarded:

I.B.5 Trends in # Degrees Awarded:

I.B.6 Strategies to Increase Awards:

I.C.1. CTE Programs: Review of Perkins Core Indicator and SWP Outcomes Metrics: N/A

I.C.2 CTE Programs: Labor Market Demand and Industry Trends :: N/A**I.D.1 Academic Services & Learning Resources: #Faculty served:****I.D.2 Academic Services & Learning Resources: #Students served:****I.D.3 Academic Services & Learning Resources: #Staff Served:****I.E.1 Full time faculty (FTEF): 7****I.E.2 #Student Employees:****I.E.3 Full Time Load as a %:** 42.1 %. Up 3%, increasing for three years now.

I.E.4 # Staff Employees: Ching Bays continues to work hard in keeping our ancient computers updated and running, but a physics technician position is desperately needed for the department to continue functioning in the laboratory.

I.E.4 #Staff Employees: 0

I.E.5 Changes in Employees/Resources: Starting with 2013-2014, our program has been severely impacted by the loss of our lab technician position. The lab technician allowed us to:

a) perform physics demonstrations (by setting them up) in the lecture that positively impact targeted student populations

b) have a physical presence on the campus with displays that encouraged participation in the program particularly for targeted groups that may not have a background that involved exposure to the direct application of physics principles in the community (solar cells for example a conservation energy idea)

c) use lab equipment that was ensured to be working because the tech made it so before the lab began. Have equipped not maintained (our current state) decreases the number of physical experiments that can be conducted causing larger lab groups (two is optimal, four per station is unacceptable) which tends to decrease participation particularly among students in targeted groups who are likely to become passive and allow other students to take the lead.

d) have more time for lab instruction rather than wasting class time repair equipment on the fly while students passively stare at their cell phones.

II.A Enrollment Trends: We have a current targeted group success percentage of 54% and it has never been higher.

II.B Overall Success Rate: Success rate is 63%. Up from 60% last year. Looking good.

II.C Changes Imposed by Internal/External Regulations: N/A

III.A Program Success: We have seen a small improvement in overall success rates and the equity gap during the past 5 years.

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☰
⌵

🏠 Home (/tracdat/fac...)

🏛️ Department ▼

- Program Review
- Personnel (/tracdat/faces/assess...)

✍️ Department Planning

📅 Reports ▼

📁 Documents ▼

⏪

?
i
☰
⌵

Home (/tracdat/fac...⌵

Department⌵

Program Review▶
Personnel (/tracdat/faces/assess...

Department Planning

Reports⌵

Documents⌵

⏪

III.B Enrollment Trends - Equity Lens: African-American enrollment at 42, reflects a small increase from last year. Filipinx is at a five year low of 80. Latinx is at 216, which, although lower than last year, is still pretty high historically.

III.C Success, Non-Success and Withdraw Rates: African-America 48% (way up from last year's 38%!). Filipinx 64% (way up). Latinx 52% (up). Pacific Islander 50% (up). Asian 66% (up) and White 64% (the only group that is down from last year).

III.D Equity Planning and Support: Our rate is 63% and above last year. This is the right direction.

Having faculty identify targeted students needing help and support is an effective method to help reduce the equity gap. We have held a meeting to discuss a plan that focuses on early intervention (first two weeks of classes) for targeted groups.

Action: All faculty have been encouraged to have a plan to address students who are struggling during first two weeks of class.


It is essential that our lab technician position be restored if we have a realistic chance of significant change in the success rate of targeted groups. Targeted groups are affected disproportionately because of the absence of a lab technician that helps bring the subject matter "alive" for students coming from disadvantaged backgrounds. A lab technician allows the department to

a) conduct lectures with relevant physical demonstrations that positively impact targeted student populations

b) have a physical presence on the campus with displays that encourage participation in the program particularly for targeted groups that may not have a background that involved exposure to the direct application of physics principles in the community (solar cells are for example a conservation energy idea: a large display of this would draw attention of students). There should be a different display every two weeks on the quad to bring in students with a "show me" mindset. Without the lab tech we can't do this. With a lab technician these outdoor activities would lift up the creative spirit of the physical sciences on campus

c) maintained lab equipment. Failing equipment decreases the number of "setups" for experiments that can be conducted; this causes larger lab groups and decreased participation particularly among students in targeted groups who are likely to "hang back" and allow other students to take the lead (in a student group of 3 or 4 instead of 2)

d) lab instruction is reduced as professors spend more time doing provisioning of equipment during



Home (/tracdat/fac...)

Department ▾

- Program Review
- Personnel (/tracdat/faces/assess...)

Department Planning

Reports ▾

Documents ▾

⏪

e) Our department has grown in enrollment, and each of these problems listed becomes even more problematic as our requests are ignored.

Action: We plan to advocate for a restoration of our lab technician position

Mentoring, support, and counseling from other support programs such as EOPS, PUENTE and BASIC SKILLS are critical in continuing the effort to reducing the equity gap.

Action: We plan to encourage participation in these programs by contacting the programs to figure out the best ways to work the respective programs.

III.E Departmental Equity Planning and Progress: Our equity gap of 17% is within historical fluctuations.

See above for our plans to address the equity gap.

III.F Assistance Needed to close Equity Gap:

IV. A. SLOAC Summary:

IV.B Assessment Planning:

V.A Budget Trends:

V.B Funding Impact on Enrollment Trends:

V.C.1 Faculty Position(s) Needed: Growth

V.C.2 Justification for Faculty Position(s): The percentage of courses taught by full timers is over 42%. As the full-time instructors are a little older now (one is a lot older now), the younger generation of teachers manifests themselves as part-timers, a self-limiting occupation that stifles the innovation we all enjoy, and expect, in our new and younger spirits.

Full-time faculty typically have a stronger physical presence on campus than part-timers, and give added value to the student experience. Full-time faculty are often more generally available than part-time faculty and have a long term perspective.

The recruitment, hiring, mentoring and evaluation of part-time faculty members taxes the full-time faculty members and part-time faculty members often have a learning curve as they become more effective at conducting classes. This extra pressure on the department would be lifted significantly if a new full-time faculty member was hired.

V.D.1 Staff Position(s) Needed: Growth position

V.D.2 Justification for Staff Position(s): When will it be our turn?

a) conduct lectures with relevant physical demonstrations that positively impact targeted student populations

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i
☰
⌵

Home (/tracdat/fac...

Department ▼

Program Review

Personnel
(/tracdat/faces/assess...

Department Planning

Reports ▼

Documents ▼

⏪

b) have a physical presence on the campus with displays that encourage participation in the program particularly for targeted groups that may not have a background that involved exposure to the direct application of physics principles in the community (solar cells are for example a conservation energy idea: a large display of this would draw attention of students). There should be a different display every two weeks on the quad to bring in students with a “show me” mindset. Without the lab tech we can't do this. With a lab technician these outdoor activities would lift up the creative spirit of the physical sciences on campus

c) Lab equipment has not been maintained which decreases the number of physical experiments that can be conducted; this causes larger lab groups and decreased participation particularly among students in targeted groups where other students may tend to dominate the use of equipment (in a student group of 3 or 4 instead of 2, it is far easier for a participant to go passive and tune out).

d) lab instruction is reduced as professors spend time doing provisioning of equipment during

e) Our department has been growing in enrollment and classes over the last two years and each of these problems listed becomes even more problematic

V.E Equipment Requests: Equipment resource requests listed on spreadsheet

V.F Facility Request:

V.G Other Needed Resources:

V.H.1 Staff Development Needs:

V.H.2 Staff Development Needs Justification:

V.I Closing the Loop:

Last Updated: 02/08/2020

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